AMENDMENTS TO THE CLAIMS

1. A liquid viscosity sensor comprising an ultrasonic source, a sampling body and an ultrasonic receiver, the sampling body including a sampling face contactable by a sample of liquid, in use, the source being operable to generate a longitudinal ultrasonic wave which follows a path through the body to the sampling face and onwards to the receiver, wherein the body is configured such that the longitudinal wave emanating from the source is transformed into a horizontally ~~polarised~~polarized shear wave prior to reaching the sampling face, and the horizontally ~~polarised~~polarized shear wave is re-transformed ———into a longitudinal wave before reaching the receiver.

2. A viscosity sensor as claimed in claim 1, wherein the sampling body is provided with a feature about which transformation of the waves occurs.

3. A viscosity sensor as claimed in claim 2, wherein the feature comprises a reflection point of the body.

4. A viscosity sensor as claimed in claim 2~~ or claim 3~~, wherein the feature comprises a reflective face of the body.

5. A viscosity sensor as claimed in claim 4, wherein the reflective face is substantially planar.

6. A viscosity sensor as claimed in claim 4~~ or claim 5~~, wherein the reflective face is defined by a solid to air interface of the body.

7. A viscosity sensor as claimed in ~~any of~~ claims ~~4 to 6~~, wherein the feature includes a reflective face ~~is~~ positioned relative to the source such that a longitudinal wave emanating from the source and impinging upon the reflective face is reflected to produce both a reflected longitudinal wave and a reflected horizontally ~~polarised~~polarized shear wave, the shear wave being horizontally ~~polarised~~polarized with reference to *the* reflective face,

8. A viscosity sensor as claimed in ~~any of~~ claims ~~4 to 7~~, wherein the sampling face is positioned relative to the reflective face such that the shear wave emanating therefrom is vertically ~~polarised~~polarized with reference to the sampling face.

9. A viscosity sensor as claimed in ~~any of~~ claims ~~4 to 8~~, wherein the sampling face is positioned such that the shear wave emanating from the reflective face impinges upon the sampling face at a relatively shallow angle, with the result that the shear wave is reflected therefrom,

10. A viscosity sensor as claimed in ~~any preceding claim~~claim 1, wherein the body further comprises a return reflective face to reflect the wave reflected from the sampling face.

11. A viscosity sensor as claimed in claim 10, wherein the return reflective face is arranged to reflect the shear wave back among the same path form which it was received,

12. A viscosity sensor as claimed in claim 10, wherein the return reflective face is arranged to reflect the shear wave along a different path from which it was received.

13. A viscosity sensor as claimed in ~~any preceding~~ claim 1, wherein the body comprises a material having a low acoustic impedance and low ultrasonic attenuation.

14. A viscosity sensor as claimed in claim 13, wherein the material characteristics of the body are uniform.

15. A viscosity sensor as claimed in claim 13 ~~or claim 14~~, wherein the body comprises a plastics material.

16. A viscosity sensor as claimed in claim 15, wherein the body comprises cross-linked polystyrene.

~~18.~~17. A viscosity sensor as claimed in ~~any preceding~~ claim 1, wherein the body is provided with external acoustic absorption means to absorb unwanted ultrasonic waves.

18. A viscosity sensor as claimed in ~~any preceding~~ claim 1, wherein the source and receiver are embodied by separate components.

19. A viscosity sensor as claimed in ~~any of~~ claims 1 ~~to 17~~, wherein the source and receiver comprise a single component.

20. A method measuring the viscosity of a liquid, the method comprising the steps of:

providing a sensor comprising an ultrasonic source, a sampling body and an ultrasonic receiver, the sampling body including a sampling face~~;~~;

placing the sampling face into contact with a liquid~~;~~;

operating the source to generate a longitudinal ultrasonic wave which propagates through the body to the sampling face and onwards to the receiver~~;~~;

transforming the longitudinal wave into a horizontally ~~polarised~~polarized shear wave prior to reaching the sampling face~~;~~;

retransforming the horizontally ~~polarised~~polarized shear wave back to a longitudinal wave between the sampling face and the receiver; and

comparing the longitudinal wave received by the receiver with the longitudinal wave generated by the source to ascertain viscosity of the liquid.

[THE REST OF THIS PAGE INTENTIONALLY LEFT BLANK]